The HER-2 biomarker provides valuable information for breast cancer patients and can be measured in either the axillary lymph node tissue or the breast lesion tissue. It has been shown that a high HER-2 expression level (≥ 3+) is associated with a worse clinical outcome compared to patients with a lower HER-2 expression level (< 2+). We performed a Bayesian meta-analysis to evaluate the association between HER-2 expression level and breast cancer recurrence in both early and late-stage breast cancer patients. The objective of this study was to determine the posterior distribution of the parameter values and to estimate the odds ratio of HER-2 positivity in breast cancer patients.

### Methods

A Bayesian meta-analysis was conducted to evaluate the association between HER-2 expression levels and breast cancer recurrence. The primary outcomes were the number of recurrences in each group. The study included 12 published studies, including 4,530 breast cancer patients from different geographical regions. The primary outcomes were the number of recurrences in each group. The study included 12 published studies, including 4,530 breast cancer patients from different geographical regions.

### Results

The posterior distribution of the odds ratio (Figure 5) indicated that there is a 95% credibility interval that the odds of a woman with a baseline serum HER-2/neu level >15 ng/mL recurred at or before two years versus normal is between 3.39 and 4.57 times higher than the odds of a woman whose baseline HER-2/neu level was ≤15 ng/mL. Therefore, the authors noted that the odds ratio was greater than 3.5 and 4.57 times more likely to recur at or before two years than women with non Elevated HER-2 levels.

### Conclusion

This study confirmed the previously published results that HER-2 expression levels in breast cancer patients are associated with an increased risk of recurrence, particularly in women with high HER-2 expression levels. The findings support the use of HER-2 expression level as a prognostic biomarker for breast cancer patients. However, further research is needed to validate these findings in larger and more diverse populations.

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**References**


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**Figure 5: Patient characteristics**

- **Results**
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